

on the middle-eastern slope. Strong anticyclonic conditions were notably absent, however, in more northerly districts, and and practically no warnings were issued or needed.

The precipitation, which was prolonged in the southwestern mountain region during the closing days of the month, was fully covered in the forecasts from twenty-four to thirty-six hours in advance. Great loss of life and property resulted from snow slides.—*F. H. Brandenburg, Forecast Official.*

#### SAN FRANCISCO FORECAST DISTRICT.

The month, as a whole, was an unusually stormy one on the California coast, and in marked contrast to the earlier part of the winter. From a dry season there was a decided change in the other direction, and the month closed with a record of the heaviest rainfall for many years, insuring an ample supply of water for the growing season.

The month began with heavy frosts generally, which were followed by rain or light snow from the Tehachapi northward. On the 21st heavy rain fell generally over California. On the 24th warnings were sent to points in the Sacramento Valley that the rivers would rise rapidly Monday night and Tuesday. River warnings were continued until the 27th, and in every case verified. The most pronounced storm of the season was shown on the morning map of February 25. Pressure readings below 29.00 inches were recorded during the day. Southeast storm warnings were displayed on the entire coast of California and verified at nearly all points. At Point Reyes Light, Cal., the 25th opened with light rain and a terrific southeast storm in progress. The wind increased rapidly to 90 miles an hour at 10:15 a. m., and continued at that velocity until after 12 noon, very frequently reaching velocities of 98 to 100 miles an hour. A maximum velocity of 98 miles occurred at 11:15 a. m., at which time an extreme velocity of 103 miles was recorded, one mile being registered in thirty-five seconds. On the 25th warnings of high southerly winds in Nevada and a rapid rise in the Sacramento River were also issued.—*A. G. McAdie, Professor.*

#### PORTLAND, OREG., FORECAST DISTRICT.

The weather in the North Pacific States during February was unusually stormy, with an excess of precipitation, and with temperature above the normal. Incoming vessels reported gales of hurricane strength near the American coast, which caused considerable damage to rigging, etc. On account of rough seas and strong head winds, many ships were kept off the mouth of the Columbia River or near the entrance to the Strait of Juan de Fuca two to three weeks before they were able to enter the harbors they sought. The Alaska steamers brought the information that southern Alaska was bare of snow and that the winter there had been unusually mild.

February storms passed across this district in a lower latitude than usual, and the month was a phenomenal one in many respects. Two severe windstorms swept between the coast and the Cascade Mountains, and both were successfully forecast. The other storms of the month passed across the district without causing unusually high winds. During the passage of a disturbance on the 25th, the extraordinary low barometer reading of 28.84 inches was recorded at Neah Bay.—*E. A. Beals, Forecast Official.*

#### HAVANA FORECAST DISTRICT.

On the 20th the following forecast was issued for the entire Island of Cuba:

12:30.—A storm of some energy is central in the Gulf of Mexico southeast of New Orleans. Brisk to high southeast winds will gradually veer and become northwesterly during Friday, with falling temperature.

Daily forecasts for the benefit of the marine interests were furnished the captain of the port of Havana during the month.—*W. B. Stockman, Forecast Official.*

#### AREAS OF HIGH AND LOW PRESSURE.

*Movements of centers of areas of high and low pressure.*

Number.	First observed.			Last observed.			Path.		Average velocity.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
<b>High areas.</b>										
I.	31, p. m.*	51	120	3, a. m.	36	87	Miles, 2,200	Days, 2.5	880	36.7
II.	2, p. m.	54	114	6, a. m.	38	75	2,800	3.5	800	33.3
III.	7, a. m.	53	108	11, p. m.	30	80	2,300	4.5	511	21.3
IV.	12, p. m.	50	97	16, p. m.	27	97	1,950	2.0	488	20.3
V.	18, p. m.	47	96	22, a. m.	48	68	2,050	2.5	586	24.4
Sums							11,300	18.0	3,265	136.0
Mean of 5 paths							2,260		653	27.2
Mean of 18.0 days									628	26.2
<b>Low areas.</b>										
I.	31, p. m.*	29	95	3, p. m.	48	68	2,300	3.0	767	32.0
II.	4, a. m.	46	84	6, a. m.	47	54	1,500	2.0	750	31.2
III.	14, p. m.	37	75	19, a. m.	46	60	1,400	1.3	1,077	45.2
IV.	12, p. m.	38	105	22, p. m.	82	65	3,250	6.5	500	20.8
V.	17, a. m.	51	120	27, a. m.	45	64	4,250	3.5	773	32.2
VI.	20, p. m.	53	114	28, p. m.	46	87	3,750	6.5	577	24.0
	25, p. m.	48	125				2,550	3.0	850	35.4
Sums							19,000	27.8	5,294	220.8
Mean of 7 paths							2,714		756	31.5
Mean of 27.8 days									695	29.0

\*February.

For graphic presentation of the movements of these highs and lows see Charts I and II.—*Geo. E. Hunt, Chief Clerk, Forecast Division.*

#### RIVERS AND FLOODS.

During February the precipitation in the Atlantic and Gulf States ranged from 1 to 4 inches above the normal amount, and as a result all the rivers were in flood at some time during the month. On the Pacific coast the excess was far greater, ranging from 1 inch in the Plateau region to as high as 12 inches on the coast. The distribution of precipitation was such, however, that there were no floods except in the northern California rivers. At Portland, Oreg., unseasonably low water prevailed during the earliest days of the month.

The Mississippi system, except the Ohio, presented nothing of interest, although comparatively high stages prevailed below Cairo, Ill., owing to the moderate flood tide that came out of the Ohio. The crest of this flood passed the mouth of the Great Kanawha River on the 31st of January and reached New Orleans, La., on the 20th of February. The light rains of the last three or four days of January over the South Atlantic and east Gulf States had also materially raised the rivers in that section, and the heavy rain of February 1 rapidly brought them above the danger-line stages. Warnings were issued as usual and no great damage was done.

The Sacramento River was high a great portion of the month, owing to the excessive rains over its watershed. Warnings were given at the proper times for all portable property to be removed to high ground and for levees to be looked after. On the 13th there were four breaks in the levee between Princeton and Colusa, Cal., and a large wheat area was overflowed. Another rapid rise set in on the 23d, and warnings were once more widely distributed. All low lands south of Red Bluff, Cal., were overflowed, and the town of Tehama, Cal., was flooded. Levees were again broken at Colusa and 40,000 acres of wheat lands flooded, making the crop a total